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42. (21) Please add Claim 42 as follows:

- (New) A method for treating a small-tank toilet system comprising the steps of:
- (a) selecting a bacteria and a surfactant;
 - (b) charging the small-tank toilet system with flushing fluid, wherein the tank-toilet system is a recirculation small-tank toilet system; and
 - (c) combining the bacteria, the surfactant, and the flushing fluid.

Marked-up copies of the amended claims 3-5, 8, 10-12, 15-16, 18, and 27-28 and new claims 35-42 are attached on a separate page to this Amendment.

REMARKS

Claims 1-34 are pending in the Application.

Claims 1-4, 6-7, and 10-34 stand rejected.

Claims 5 and 8-9 stand objected.

Claims 1-2, 6-7, 21-26, and 29-34 are deleted herein without prejudice.

Claims 35-42 are added herein.

I. CLAIM CONSTRUCTION

In Paper No. 4, the Examiner has construed the terms "small-tank toilet system" and "fluid" and applied narrower terms than understood by persons of ordinary skill in the art and as utilized by the Applicant in the Application. Paper No. 4, at 6. Accordingly, Applicant respectfully traverses Examiner's interpretation of these terms.

As to "small-tank toilet systems," Applicant stated: "Although, it may be larger, a small tank is generally a tank that holds approximately 35-40 gallons of fluid or less. A large tank is generally a tank that holds approximately around 120 gallons of fluid. The use of small-tank toilet systems creates several problems unique from those of large-tank toilet systems and other toilet systems." Application, at 2. As the plain words of this statement reflect, a small tank is typically 35-40 gallons of fluid or less, but can be larger. No dimensional upper boundary limit was recited. As to the boundary between small-tank toilet systems and large-tank toilet systems, Applicant further expressed a functional definition. Namely, Applicant identified one of the

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several unique problems of small-tank toilet systems that was unique from large tank systems in the Application: "While not as prevalent in other toilet systems, such as for large-tank toilet systems, these ammonia fumes [a byproduct of the process employed by the bacteria] were quite pungent in the small-tank toilet systems." Application, at 5 Therefore, a small-tank toilet system is a system that would have such a problem, while a large-tank toilet system would not. *Id.*

There is nothing improper respecting Applicant defining small-tank toilet systems utilizing both dimensional and functional characteristics, in that a person of ordinary skill in the art of the Application would understand "small-tank toilet system" as utilized within the Application. Accordingly, Applicant does not concur to the statements of Examiner directed toward narrowing the construction of "small-tank toilet system."

As to the term "fluid," Examiner acknowledges in Paper No. 4 the term "fluid" has a broader definition than the term "liquid." Paper No. 4, at 4. Nonetheless, Examiner has interpreted the term fluid to suggest it is limited to liquids only. Applicant does not concur with this narrower construction. As reflected in the Application, Applicant utilized the terms "fluid" and "liquid" throughout the Application, and nowhere equated these terms. While Applicant disclosed a preferred embodiment in which the fluid was a liquid (and, thus, measured in gallons), it does not follow that Applicant was somehow limiting the meaning of "fluid" to "liquid." Moreover, there are instances when gas volumes are expressed in gallons. Accordingly, Applicant does not concur to statements of Examiner directed toward narrowing the definition of "fluid."

II. REJECTION UNDER 35 U.S.C. § 112, ¶ 2

The Examiner has rejected Claims 3-4, 10-20, 23-24, and 27-28 under 35 U.S.C. § 112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter for which protection is sought. Paper No. 4, at 8.

A. **Claim 3.** Examiner has indicated the requirement that the bacteria be "combined with the surfactant in a weight ratio" is unclear. Paper No. 4, at 8. Applicant has amended Claim 3 to insert the term --(weight of the bacteria:weight of surfactant)-- to reflect further the manner in which the weight ratio is calculated. For instance, for a process that utilizes 10 parts by weight bacteria to 100 parts by weight surfactant calculates to a weight ration of 10%.

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Applicant has otherwise amended Claim 3 to write this claim in independent form. The Applicant respectfully asserts that these amendments to Claim 3 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705 (2002).

B. Claim 4. Similar to Examiner's indication for Claim 3, Examiner has indicated the requirement that the bacteria be "combined with the surfactant in a weight ratio" is unclear. Paper No. 4, at 8. Moreover, the Examiner has pointed to a typographical error in Claim 4, wherein the Applicant inadvertently referred to the weight ratio as "weight ration." Paper No. 4, at 9. Applicant has amended Claim 4 to replace "ration" with the correct term --ratio--and, as in the amendment to Claim 3, to insert the term --(weight of the bacteria:weight of surfactant)-- to reflect further the manner in which the weight ratio is calculated. Applicant has also amended the claim to have it now depend from Claim 3. The Applicant respectfully asserts that these amendments to Claim 4 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

C. Claim 5. While Examiner did not reject Claim 5 under §112, ¶2, Examiner did state that there was an ambiguity in Claim 5 in that it appeared to require the method was utilized in more than one type of systems (*i.e.* airplane toilet systems, boat toilet systems, *ect.*) simultaneously. Paper No. 4, at 9. Applicant has clarified the claim language to indicate that the small-tank toilet system --is selected from the group consisting of airplane toilet systems, bus toilet systems, camper toilet systems, train toilet systems, boat toilet systems, and free standing portable toilet systems--. This *Markush* grouping reflects the claimed method requires the toilet system to be one of this group, not all of them simultaneously. Applicant has otherwise amended Claim 5 to write this claim in independent form as suggested by the Examiner (Paper No. 4, at 10). The Applicant respectfully asserts that these amendments to Claim 5 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

D. Claim 10. Examiner has indicated that Claim 10 is unclear in that Applicant has mixed steps of the method with elements more properly recited as wherein clauses. Paper No. 4,

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at 9. Accordingly, Applicant has amended the claim in the manner suggested by the Examiner. The Applicant respectfully asserts that these amendments to Claim 10 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp.*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

E. Claim 11. Similar to Claim 10, the Examiner has indicated that Claim 11 is unclear in that Applicant has recited the additional elements as steps of the process when more properly these elements should have been recited as wherein clauses. Paper No. 4, at 9. Accordingly, Applicant has amended the claim in the manner suggested by the Examiner.

Furthermore, the Examiner has indicated these claims are unclear because of Applicants use of the term "about" in the claim. Paper No. 4, at 6. The term "about" is permissible language that can be used in a patent claim. MPEP § 2173.05(b)(A). Accordingly, such language is clear, but flexible. *Ex parte Eastwood*, 163 U.S.P.Q. 316 (Bd. App. 1968); *see also W.L. Gore & Assoc., Inc. v. Gurlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983).

The Examiner's rejection seems to be directed to the ranges for the filler, food source, deodorant, and bacteria and surfactant, which Examiner purports is not possible. Paper No. 4, at 8-9. As an initial matter, Examiner's rejection is not proper. Claim ranges are "not indefinite simply because the claims may read in theory to include compositions that are impossible in fact to formulate." MPEP § 2173.05(c)(II). Rather, these claims are definitely defined, as required by § 112, ¶ 2. That a claim could be impossible to formulate under certain conditions of the claim, simply means that the claim cannot be infringed under those conditions that are impossible. *Id.*; *In re Kroekel*, 504 F.2d 1143, 183 U.S.P.Q. 610 (C.C.P.A. 1974).

Moreover, Applicant does not agree it is impossible for the bacteria and surfactant to be mixed in the composition to its upper range of "about 50% by weight" while meeting the conditions of the minimum amounts of the filler, food source, and deodorant. For instance, when the filler is 49.8% by weight (which is "at least about 50% by weight"), the food source is 0.1% by weight (which is in the "range from about 0.1% to about 5% by weight"), and the deodorant is 0.05% by weight (which is in the "range from about 0.05% to about 2% by weight"), the remaining 50.05% by weight can be bacteria and surfactant, which is "in the range from about 5% to about 50% by weight). Thus, the concerns expressed by the Examiner that the ranges expressed within Claim 11 are not possible are unfounded.

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The Applicant respectfully asserts that these amendments to Claim 11 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp.*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

F. **Claim 12.** Similar to Claims 10 and 11, the Examiner has indicated that Claim 12 is unclear in that Applicant has recited the additional elements as steps of the process when more properly these elements should have been recited as wherein clauses. Paper No. 4, at 9. Accordingly, Applicant has amended the claim in the manner suggested by the Examiner. The Applicant respectfully asserts that these amendments to Claim 12 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp.*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

G. **Claim 15.** Similar to Claims 10-12, the Examiner has indicated that Claim 15 is unclear in that Applicant has recited the additional elements as steps of the process when more properly these elements should have been recited as wherein clauses. Paper No. 4, at 9. Accordingly, Applicant has amended the claim in the manner suggested by the Examiner. The Applicant respectfully asserts that these amendments to Claim 15 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp.*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

H. **Claim 16.** Similar to Claims 10-12 and 15, the Examiner has indicated that Claim 16 is unclear in that Applicant has recited the additional elements as steps of the process when more properly these elements should have been recited as wherein clauses. Paper No. 4, at 9. Accordingly, Applicant has amended the claim in the manner suggested by the Examiner. The Applicant respectfully asserts that these amendments to Claim 16 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp.*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

I. **Claim 18.** Examiner has indicated that Claim 18 is unclear in that step (f) includes repeating itself. Paper No. 4, at 9. Examiner has suggested that in step (f), Applicant change "(f)" to "(e)". *Id.* Applicant has amended the claim in the manner suggested by the Examiner. The Applicant respectfully asserts that these amendments to Claim 18 are not narrowing amendments made for a reason related to the statutory requirements for a patent that

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will give rise to prosecution history estoppel. *See Festo Corp*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

J. **Claims 27 and 28.** Twice in the Office Action, Examiner indicated Claims 27 and 28 were rejected claims. *See* Paper No. 4, at 1 and 8. However, other than stating these rejections were based under § 112, ¶ 6 (Paper No. 4, at 8), Examiner has not explained why these claims are indefinite. To the contrary, the Examiner stated that these claims would be allowable if Applicant presented them in independent form. Paper No. 4, at 10. In view of these circumstances, Applicant understands there to be no actual § 112, ¶ 6 issue pertaining to Claims 27 and 28. Accordingly, Applicant has amended Claims 27 and 28 to write these claims in independent form as suggested by the Examiner. Paper No. 4, at 10. The Applicant respectfully asserts that these amendments to Claims 27 and 28 are not narrowing amendments made for a reason related to the statutory requirements for a patent that will give rise to prosecution history estoppel. *See Festo Corp*, 122 S. Ct. 1831, 62 U.S.P.Q.2d 1705.

Applicant has now addressed the bases under 35 U.S.C. § 112, ¶ 2, for which the Examiner rejected each of Claims 3-4, 10-12, 15-16, 18, and 27-28 (as well as those additional claims that depended from those claims), and Applicant has presented these claims in condition for allowance. Accordingly, Applicant respectfully requests the Examiner withdraw the rejections of Claims 3-5, 10-20, and 27-28 under U.S.C § 112, ¶ 2.

III. REJECTION UNDER 35 U.S.C. § 103(a) BASED UPON ROBERTSON

The Examiner has rejected Claims 1-2, 6-7, 21-26, and 29-34 under 35 U.S.C. § 103(a) as being obvious over United States Patent No. 4,655,794, issued to Richardson, *et al.* ("Richardson"). The Applicant respectfully traverses the rejections of these claims; however, for clarity sake, Applicant is withdrawing these claims from the present Application without prejudice. Applicant intends on continuing prosecution of these withdrawn claims in a continuation application.

Lest Applicant's silence on this issue be regarded as a tacit admission of Examiner's assertions in Paper No. 4 at 6-7, Applicant states for the record that the fact that *Richardson* discloses a liquid cleaner containing viable microorganism disclosed that can be used on boats, does not render it obvious to utilize the *Richardson* liquid cleaner in small-tank toilet systems, in

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toilet systems that have a size such that the amount of the byproduct formed by the viable microorganisms has an odor to be controlled, or in recirculation toilet systems. Nor does it render it obvious to use the *Richardson* liquid cleaner with color agents or deodorizers. Nor does it render it obvious to use the *Richardson* liquid cleaner in airplanes, busses, campers, trains, and free standing portable toilets.

To the contrary, *Richardson* discusses using the liquid cleaner in "institutions, boats, city lines, etc." *Richardson*, col. 5, ll. 2-4. A review of the publications specifically enumerated in *Richardson* reflects that the boats that were under discussion were United States Navy boats, which are considerably larger boats with larger systems and systems that would not have the odor problems caused by byproduct that is produced when bacteria is utilized. See, e.g., *Richardson*, col. 3, ll. 9-11. As such, *Richardson* is cumulative of the prior art of record; *Richardson* discloses use of bacteria along with a surfactant for systems that such byproduct odor caused by the use of bacteria (e.g. ammonia fumes) does not arise. The toilet systems of interest in the present Application (and to which the claims, including the withdrawn claims, are directed) are those systems in which the byproduct odor problems caused by the use of bacteria prevented such use of bacteria. The invention of the present Application utilized the bacteria/surfactant combination, which had the unexpected effect of overcoming these byproduct odor problems. See Application, at 5-6. As bacteria had previously been understood in the art as not possible to use in toilet systems having such problems, the invention of the present Application was not obvious.

IV. CONCLUSION

As a result of the foregoing, it is asserted by Applicant that the remaining Claims in the Application are in condition for allowance, and respectfully request an early allowance of such Claims.

Applicant respectfully requests that the Examiner call Applicant's attorney at the below listed number if the Examiner believes that such a discussion would be helpful in resolving any remaining problems.

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Respectfully submitted,

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3. (Amended) [The] A method for treating a small-tank system comprising the steps of:
- (a) selecting a bacteria and a surfactant;
 - (b) charging the small-tank toilet system with flushing fluid; and
 - (c) combining the bacteria, the surfactant, and the flushing fluid, wherein the bacteria is selected from the group consisting of *Bacillus licheniformis*, *Pseudomonas fluorescens*, *Alcaligenes latus*, *Bacillus subtilis*, and *Pseudomonas putida* and [of claim 2] wherein the bacteria is combined with the surfactant in a weight ratio (weight of the bacteria:weight of the surfactant) from about 10% to about 50%.
4. (Amended) The method of claim [2] 3 wherein the [bacteria is combined with the surfactant in] a weight [ration] ratio (weight of the bacteria:weight of the surfactant) from about 10% to about 30%.
5. (Amended) [The] A method for treating a small-tank system comprising the steps of:
- (a) selecting a bacteria and a surfactant;
 - (b) charging the small-tank toilet system with flushing fluid; and
 - (c) combining the bacteria, the surfactant, and the flushing fluid, wherein the bacteria is selected from the group consisting of *Bacillus licheniformis*, *Pseudomonas fluorescens*, *Alcaligenes latus*, *Bacillus subtilis*, and *Pseudomonas putida* and [of claim 2] wherein the small-tank toilet system is [utilized in a] selected from the group consisting of [airplanes] airplane toilet systems, [busses] bus toilet systems, [campers] camper toilet systems, [trains] train toilet systems, [boats] boat toilet systems, and free standing portable toilet systems.
8. (Amended) [The] A method for treating a small-tank system comprising the steps of:
- (a) selecting a bacteria and a surfactant;
 - (b) charging the small-tank toilet system with flushing fluid;
 - (c) combining the bacteria, the surfactant, and the flushing fluid; and [of claim 1
further comprising the step of]

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(d) mixing the bacteria and surfactant into a composition before combining it with the flushing fluid, wherein said composition is a form selected from the group consisting of a liquid form, a powder form, and a solid block-tablet form.

10. (Amended) The method of claim 9 further comprising the steps of:

(a) [the filler is selected from the group consisting of calcium carbonate and sodium sulfate;

(b) the food source is dried brewers yeast;

(c)] mixing a deodorant in the composition; and

[(d)](b) mixing a coloring agent in the composition, wherein the filler is selected from the group consisting of calcium carbonate and sodium sulfate and the food source is dried brewers yeast.

11. (Amended) The method of claim 9 [further comprising the steps of] wherein:

(a) the filler is mixed in the composition at least about 50% by weight;

(b) the food source is mixed in a range from about 0.1% to about 5% by weight;

(c) the deodorant is mixed in the composition in a range from about 0.05% to about 2% by weight; and

(d) the bacteria and the surfactant are mixed in the composition in the range from about 5% to about 50% by weight.

12. (Amended) The method of claim 9 [further comprising the steps of] wherein:

(a) the filler is mixed in the composition with the range from about 50% to about 80% by weight;

(b) the food source is dried brewers yeast in the composition in the range from about 1% to about 2% by weight;

(c) the deodorant is mixed in the composition in a range from about 0.2% to about 1% by weight; and

(d) the bacteria and the surfactant are mixed in the composition in the range of about 15% to about 20% by weight.

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15 (Amended) The method of claim 14 [further comprising the steps of] wherein:

- (a) the water is mixed in the composition at least about 50% by weight;
- (b) the alcohol is mixed with a monoethanolamine, the bacteria, and the surfactant in the range from about 1.5% to about 60% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant;
- (c) the monoethanolamine is mixed with the alcohol, the bacteria, and the surfactant in the range from about 1.5% to about 60% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant; and
- (d) the bacteria and the surfactant are mixed with the alcohol and monoethanolamine in the range from about 20% to about 97% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant.

16. (Amended) The method of claim 15 [further comprising the steps of] wherein:

- (a) the alcohol is mixed with a monoethanolamine, the bacteria, and the surfactant in the range from about 5% to about 20% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant;
- (b) the monoethanolamine is mixed with the alcohol, the bacteria, and the surfactant in the range from about 5% to about 15% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant; and
- (c) the bacteria and the surfactant are mixed with the alcohol and monoethanolamine in the range from about 65% to about 90% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant.

18. (Amended) A method for treating a small-tank toilet system comprising the steps of:

- (a) removing a first flushing fluid from a small-tank toilet system;
- (b) charging the small-tank toilet system with a second flushing fluid;
- (c) selecting a bacteria, which bacteria is selected from the group consisting of *Bacillus licheniformis*, *Pseudomonas fluorescens*, *Alcaligenes latus*, *Bacillus subtilis*, and *Pseudomonas putida*;
- (d) selecting a surfactant for combining with the bacteria;

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- (e) charging the small-tank toilet system with the bacteria and the surfactant;
- (f) repeating steps (a)-(f) (a)-(e).

27. (Amended) [The] An apparatus for treating human waste products comprising:

- (a) a small-tank toilet system;
- (b) a flushing fluid charged into the small-tank toilet system;
- (c) a bacteria and a surfactant combined with the flushing fluid; and [of claim 21 further comprising:]
 - [(a)](d) a filler and, a food source, combined with the bacteria and the surfactant, wherein
 - (i) the filler is calcium carbonate and is combined with the food source, the methyl salicylate, the bacteria, and the surfactant by at least about 50% by weight;
 - (ii) the food source is dried brewers yeast and is combined with the filler, the methyl salicylate, the bacteria, and the surfactant in a range from about 0.1% to about 5% by weight; and
 - (iii) the bacteria and the surfactant with the filler and, the food source, in a range from about 5% to about 50% by weight.

28. (Amended) [The] An apparatus for treating human waste products comprising:

- (a) a small-tank toilet system;
- (b) a flushing fluid charged into the small-tank toilet system;
- (c) a bacteria and a surfactant combined with the flushing fluid; and [of claim 21 further comprising:]
 - [(a)](d) water, alcohol, and monoethanolamine, combined with the bacteria and the surfactant, wherein
 - (i) water is combined with the alcohol, the monoethanolamine, the bacteria, and the surfactant, by at least about 50% by weight;
 - (ii) the alcohol is combined with the monoethanolamine, the bacteria, and the surfactant in the range from about 1.5% to about 60% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant;

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(iii) the monoethanolamine is combined with the alcohol, the bacteria, and the surfactant in the range from about 1.5% to about 60% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant; and

(iv) the bacteria and the surfactant are combined with the alcohol and monoethanolamine in the range from about 20% to about 97% by weight of the alcohol, the monoethanolamine, bacteria, and surfactant.

35. (New) The method of treating a tank toilet system comprising:

(a) charging the tank toilet system with flushing fluid, wherein the tank toilet system is selected from the group consisting of airplane toilet systems, bus toilet systems, camper toilet systems, train toilet systems, boat toilet systems, and free standing portable toilet systems;

(b) charging the tank toilet system with a bacteria;

(c) decomposing human waste product in the tank toilet system utilizing the bacteria to form byproduct, wherein, the tank toilet system has a size such that the amount of the byproduct formed by the decomposing step has an odor to be controlled; and

(d) charging a surfactant to the tank toilet system to control the byproduct odor.

36. (New) The method of claim 35 wherein the bacteria is selected from the group consisting of *Bacillus licheniformis*, *Pseudomonas fluorescens*, *Alcaligenes latus*, *Bacillus subtilis*, and *Pseudomonas putida*.

37. (New) The method of claim 35 wherein the bacteria is combined with the surfactant in a weight ratio (weight of the bacteria: weight of the surfactant) from about 10% to about 50%.

38. (New) The method of claim 37 wherein the weight ratio (weight of the bacteria: weight of the surfactant) from about 10% to about 30%.

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39 (New) An apparatus for treating human waste products comprising:

(a) a tank toilet system, wherein the tank toilet system is selected from the group consisting of airplane toilet systems, bus toilet systems, camper toilet systems, train toilet systems, boat toilet systems, and free standing portable toilet systems;

(b) a flushing fluid charged into the tank toilet system;

(c) a bacteria charged into the tank toilet system for decomposing human waste product in the tank toilet system to form byproduct, wherein the tank toilet system has a size such that the amount of the byproduct formed by the decomposing of the human waste product has an odor to be controlled; and

(d) a surfactant charged into the tank toilet system for controlling the byproduct odor.

40. (New) The apparatus of claim 39 wherein the bacteria is selected from the group consisting of *Bacillus licheniformis*, *Pseudomonas fluorescens*, *Alcaligenes latus*, *Bacillus subtilis*, and *Pseudomonas putida*.

41. (New) The apparatus of claim 39 wherein the bacteria is combined with the surfactant in a weight ratio (weight of the bacteria: weight of the surfactant) from about 10% to about 50%.

42. (New) A method for treating a small-tank toilet system comprising the steps of:

(a) selecting a bacteria and a surfactant;

(b) charging the small-tank toilet system with flushing fluid, wherein the tank-toilet system is a recirculation small-tank toilet system; and

(c) combining the bacteria, the surfactant, and the flushing fluid.

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